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ABSTRACT

Disclosed is a method of tracking coded objects that are located within a physical system and are represented within an image. The method includes the act of receiving a first image having a plurality of image pixels that include a first pixel, a first neighbor pixel, and a plurality of coded objects pixels that include the first pixel, wherein the coded object pixels represent a first coded object of the physical system that has a known code pattern and the act of obtaining object data about the first coded object by comparing luminosity values of the first pixel and the first neighbor pixel. In one embodiment, the object data also indicates whether the first pixel is black or white, and the first neighbor pixel is a known white pixel. The first neighbor pixel has a color that is opposite a color of the first pixel, and the act of obtaining the object data further includes the acts of determining whether a first pixel luminosity value of the first pixel is smaller than a first neighbor luminosity value of the first neighbor pixel by more than a predetermined value, defining the first pixel as black when the first pixel luminosity value of the first pixel is smaller than the first neighbor luminosity value of the first neighbor pixel by more than a predetermined value, determining whether the first neighbor luminosity value of the first neighbor pixel is smaller than the first pixel luminosity value of the first pixel by more than a predetermined value when the first pixel luminosity value of the first pixel is not smaller than the first neighbor luminosity value of the first neighbor pixel by more than a predetermined value, and defining the first pixel as white when the first neighbor luminosity value of the first neighbor pixel is smaller than the first pixel luminosity value of the first pixel by more than a

predetermined value. Also disclosed is a coded object that is configured to be scanned by a camera and included in an image that is received as input to a computer implemented coded object recognition program. The coded object includes a first region that is represented as a first region image in the received image and a second region that is represented as a second region image in the received image. The first region has an opposite color of the second region such that the coded object may be matched to a known coded pattern by determining whether a certain percentage of pixels within the second region image have a higher luminosity value than the first region image.

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